

IN THE CLAIMS:

Claims 1, 10, 18 and 24 have been amended herein. Please note that all claims currently pending and under consideration in the referenced application are shown below, in clean form, for clarity. Please enter these claims as amended. Also attached is a version with markings to show changes made to the claims.

1. (Four Times Amended) A semiconductor die assembly comprising:
a semiconductor die having a plurality of bond pads on an active surface thereof;
a lead frame having at least a first group of lead fingers and a second group of lead fingers to respectively extend from first and second opposing sides of said semiconductor die attached to a die-attach location on said lead frame to another, single side of said lead frame in a substantially mutually parallel configuration;
a first voltage reference plane adjacent to said first side of said semiconductor die, said first voltage reference plane underlying at least a portion of said first group of lead fingers extending from said first side of said semiconductor die toward said another, single side of said lead frame; and
a second voltage reference plane adjacent to said second opposing side of said semiconductor die, said second voltage reference plane underlying at least a portion of said second group of lead fingers extending from said second opposing side of said semiconductor die toward said another, single side of said lead frame.
2. The assembly of claim 1, wherein said lead frame comprises a vertical surface mount package configuration.
3. (Previously Amended) The assembly of claim 1, wherein said first voltage reference plane and said second voltage reference plane are adhered to at least some of the lead fingers of said first group of lead fingers and said second group of lead fingers, respectively.

4. (Previously Amended) The assembly of claim 3, wherein said first voltage reference plane and said second voltage reference plane are adhered directly via a non-conductive adhesive to said at least some of the lead fingers of said first group of lead fingers and said second group of lead fingers, respectively.

5. The assembly of claim 1, further comprising a packaging material encapsulating at least said active surface of said semiconductor die.

6. (Previously Amended) The assembly of claim 5, wherein said packaging material at least partially covers said first and said second voltage reference planes and said first and said second groups of lead fingers.

7. The assembly of claim 1, wherein said lead frame includes a die-attach paddle to which said semiconductor die is attached.

8. The assembly of claim 1, wherein said die-attach location comprises a die-attach paddle.

9. (Previously Amended) The assembly of claim 1, wherein said first voltage reference plane and said second voltage reference plane are electrically connected to at least one lead finger of said first group of lead fingers and said second group of lead fingers, respectively, which in turn is connected through a bond pad to a reference potential of said semiconductor die.

10. (Amended) The assembly of claim 1, wherein at least one of said first voltage reference plane and said second voltage reference plane includes a plurality of projections extending outwardly from a surface of said at least one of said first voltage reference plane and said second voltage reference plane.

11. The assembly of claim 10, further comprising a packaging material extending over at least one of said first voltage reference plane and said second voltage reference plane, wherein said projections extend through said packaging material.

12. The assembly of claim 11, wherein said projections extend through said packaging material to an exterior surface thereof.

13. (Previously Amended) The assembly of claim 1, wherein said first voltage reference plane and said second voltage reference plane are of sufficient mass to measurably alter heat transfer characteristics of said assembly.

14. The assembly of claim 1, further comprising a packaging material encapsulating said assembly so that only outer ends of said at least said first group of lead fingers and said second group of lead fingers extend therethrough.

15. (Previously Amended) The assembly of claim 1, wherein said first voltage reference plane and said second voltage reference plane extend over at least about fifty percent of a surface area of said at least said first group of lead fingers and said second group of lead fingers, respectively.

16. (Previously Amended) The assembly of claim 1, wherein said first voltage reference plane and said second voltage reference are separated from said at least said first group of lead fingers and said second group of lead fingers, respectively, by an insulating adhesive structure.

17. (Previously Amended) The assembly of claim 16, wherein said insulating adhesive structure comprises an insulating film having an adhesive on opposing surfaces thereof, one surface of said opposing surfaces being adhered to at least one of said first group of lead fingers and said second group of lead fingers and another surface of said opposing surfaces being adhered to at least one of said first voltage reference plane and said second voltage reference plane.

18. (Three Times Amended) A vertical surface mount lead frame to be assembled to a semiconductor die, comprising:

a lead frame having at least a first group of lead fingers and a second group of lead fingers to respectively extend from first and second opposing sides of an intended die-attach location to another, single side of said lead frame in a substantially mutually parallel configuration;

a first voltage reference plane in immediate proximity to said first group of lead fingers and in electrical isolation therefrom, said first voltage reference plane extending across at least a turning portion of said first group of lead fingers extending from said first side of said intended die-attach location toward said another, single side of said lead frame;

a second voltage reference plane in immediate proximity to said second group of lead fingers and in electrical isolation therefrom, said second voltage reference plane extending across at least a turning portion of said second group of lead fingers extending from said second opposing side of said intended die-attach location toward said another, single side of said lead frame; and

an intervening neck extending across said another, single side of said lead frame and conductively connecting said first voltage reference plane and said second voltage reference plane.

19. (Previously Amended) The assembly of claim 18, wherein said first voltage reference plane and said second voltage reference plane are adhered to at least some of the lead fingers of said first group of lead fingers and said second group of lead fingers, respectively.

20. (Previously Amended) The assembly of claim 19, wherein said first voltage reference plane and said second voltage reference plane are adhered directly via a non-conductive adhesive to said at least some of the lead fingers of said first group of lead fingers and said second group of lead fingers, respectively.

21. The assembly of claim 18, wherein said lead frame includes a die-attach paddle to which said semiconductor die is attached.

22. The assembly of claim 18, wherein said die-attach location comprises a die-attach paddle.

23. The assembly of claim 18, wherein at least one of said first voltage reference plane and said second voltage reference plane includes projections extending away from a direction of said immediate proximity of said first group of lead fingers and said second group of lead fingers, respectively.

24. (Twice Amended) The assembly of claim 18, wherein said first voltage reference plane and said second voltage reference plane extend across at least about fifty percent of a surface area of said at least said first group of lead fingers and said second group of lead fingers, respectively.

25. The assembly of claim 18, wherein said first voltage reference plane and said second voltage reference is separated from said at least said first group of lead fingers and said second group of lead fingers, respectively, by an insulating adhesive structure.

26. (Previously Amended) The assembly of claim 25, wherein said insulating adhesive structure comprises an insulating film having an adhesive on opposing surfaces thereof, one surface of said opposing surfaces being adhered to at least one of said first group of lead fingers and said second group of lead fingers and another surface of said opposing surfaces being adhered to at least one of said first voltage reference plane and said second voltage reference plane.